REMARKS

By this Amendment, claims 1-3 are cancelled, and claims 4-22 are amended. Thus, claims 4-22 are active in the application. Reexamination and reconsideration of the application are respectfully requested.

I.   Substitute Specification and Abstract

The specification and abstract have been carefully reviewed and revised in order to correct grammatical and idiomatic errors in order to aid the Examiner in further consideration of the application. The amendments to the specification and abstract are incorporated in the attached substitute specification and abstract. No new matter has been added.

Also attached hereto is a marked-up version of the substitute specification and abstract illustrating the changes made to the original specification and abstract.

II.   Claims Added in Preliminary Amendment

In item 4 of the Office Action Summary form, the Examiner indicated that claims 1-19 are pending in the present application. Based on this assertion by the Examiner, it appears that the Examiner was not aware that claims 20-22 were also pending in the present application at the time the Office Action was issued.

Claims 1-19 were presented in the original specification of the present application. However, claims 4 and 12 presented in the original specification were multiple dependent claims. In particular, claim 4 presented in the original specification depended from claims 2 or 3, and claim 12 presented in the original specification depended from claims 1 or 11. To reduce the filing fee of the present application, the Applicants submitted a Preliminary Amendment with the present application on November 28, 2003 to remove the multiple dependencies of claims 4 and 12.

Specifically, claim 4 was amended in the Preliminary Amendment to depend from only claim 2, and claim 20, which corresponds to claim 4, was added to depend from only claim 3. In addition, claim 12 was amended in the Preliminary Amendment to depend from only 1, and claim 21, which corresponds to claim 12, was added to depend

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from only claim 11. Further, since claim 13 depended from claim 12, claim 22 was also added in the Preliminary Amendment to depend from added claim 21.

The Preliminary Amendment filed on November 28, 2003 is present in the PAIR (Patent Application Information Retrieval) entry for the present application, and therefore, the Applicants presume that the Preliminary Amendment is also available in the IFW system of the Office. However, should the Examiner not have access to the Preliminary Amendment filed on November 28, 2003, the Examiner is respectfully request to contact the Applicants' undersigned representative for a copy of the Preliminary Amendment.

Accordingly, as mentioned above, claims 4-19 as well as claims 20-22 are pending in the present application.

III.   Allowable Claims

The Applicants thank the Examiner for kindly indicating, in item 8 on page 6 of the Office Action, that claims 6-15 and 17-18 would be allowable if rewritten in independent form to include all of the limitations of their base claim and any intervening claims.

Claims 6-8 and 10 have each been rewritten in independent form to include the limitations of cancelled claim 1 and original claim 5. Further, claims 11-12, 14-15 and 17-18 have each been rewritten in independent form to include the limitations of cancelled claim 1.

Minor editorial revisions to the original claims have been made to improve their U.S. form, and to provide proper antecedent basis for all the recited limitations. The editorial revisions made to claims 6-8, 10-12, 14-15 and 17-18 do not, however broaden or narrow their scope of protection for the present invention.

In addition, the Applicants also wish to direct the Examiner's attention to a correction of a typographical error in claim 12. Original claim 12 recited that "the phase control circuit obtains a phase difference between the wobble binary signal and the wobble signal that has passed through the digital filter." However, the underlined portion of this limitation should have read "the wobble binary signal waveform" in accordance with the disclosure of the specification.

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Specifically, with reference to Figure 1 and lines 13-25 on page 18 of the substitute specification (corresponding to lines 3-16 on page 18 of the original specification), for example, the present invention provides that the pickup 101 outputs a RF signal to the waveform shaping circuit 106, and a WBL (wobble) binary signal to the WBL binarization circuit 105. The digital filter 111 constituting the waveform shaping circuit 106 receives the RF signal outputted from the pickup 101, digitally processes the input signal to generate a WBL binary signal waveform, and then outputs the generated WBL binary signal waveform to the phase control circuit 107. The phase control circuit 107 controls the phase of the smoothed WBL binary signal outputted from the WBL binarization circuit 105 with reference to the WBL binary signal waveform outputted from the waveform shaping circuit 106, and outputs a phase controlled signal to the PLL circuit 108.

Accordingly, claim 12 has been amended to correct the typographical error contained in original claim 12. In particular, claim 12 has been amended to recite that "said phase control circuit is operable to obtain a phase difference between the wobble binary signal and the wobble binary signal waveform that has passed through said digital filter, and control the phase by delaying the wobble binary signal."

The Applicants respectfully submit that the correction of the typographical error in claim 12 does not remove claim 12 from being allowable if rewritten in independent form to include the limitations of cancelled claim 1. In particular, the Applicants respectfully submit that none of the applied references disclose or suggest the limitations of amended claim 12. Therefore, the Applicants respectfully submit that amended claim 12 is still clearly in condition for allowance.

As noted above, claim 21, which corresponds to claim 12, was added in the Preliminary Amendment to depend from only claim 11. The limitation of claim 12 mentioned above has also been amended in claim 21.

Accordingly, in view of the Examiner's assertion that claims 6-15 and 17-18 would be allowable if rewritten in independent form to include all of the limitations of their base claim and any intervening claims, the Applicants respectfully submit that amended claims 6-8, 10-12, 14-15 and 17-18, as well as claims 7, 9, 13, 16, 19 and 21-22 which depend therefrom, are clearly in condition for allowance.

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IV.   Art Rejections

In item 2 on page 2 of the Office Action, claims 1 and 19 were rejected under 35 U.S.C. § 102(e) as being anticipated by Iida (U.S. 6,377,525). This rejection is believed to be moot with respect to claim 1. Claim 19 has been amended to depend from allowable claim 12.

In item 4 on page 3 of the Office Action, claims 2 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Iida in view of Pupalaikis (U.S. 6,701,335). Further, in item 5 on page 4 of the Office Action, claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Iida in view of Pupalaikis and further in view of Asano et al. (U.S. 6,621,772, hereinafter "Asano").

Claim 4 has been rewritten in independent form to include the limitations recited in cancelled claims 1 and 2. Claim 20 has been rewritten in independent form to include the limitations recited in cancelled claims 1 and 3. The Applicants respectfully traverse the rejection of claims 4 and 20 for the following reasons.

Claim 4 recites that the waveform shaping circuit includes a BPF (Band Pass Filter) as a digital filter. Claim 20 recites that the waveform shaping circuit includes a LPF (Low Pass filter). The digital filter is recited in claims 4 and 20 as being constituted by an IIR (Infinity Impulse Response) digital filter having a reset function of initializing the digital filter when characteristics of the digital filter are divergent.

Further, claims 4 and 20 recite that the digital filter is operable to calculate an optimum tap coefficient value, store the optimum tap coefficient value in a storage unit that is externally provided, and perform filtering by utilizing the optimum tap coefficient value stored in the storage unit.

The Examiner contends that Pupalaikis discloses these features of the present invention. It appears that the Examiner rejected claim 4 (and presumably claim 20) because claims 4 and 20 recites that a BPF or LPF is a digital filter. However, the present invention, as recited in claims 4 and 20, provides that the digital filter is an IIR digital filter having a reset function.

An IIR filter can have a specific construction, but a filter simply stated as a BPF or a LPF cannot have a clarified function or a target band. Depending on the construction a BPF or a LPF, an arbitrary function or a target band is conventionally used. On the

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contrary, claims 4 and 20 recite that a digital filter is an IIR filter having a reset function. The reset functions of the digital filter of claim 4 are provided for particular and novel effects. In particular, in the IIR filter, frequency characteristics may become divergent, in which case a deterioration in the wobble signal processing apparatus as a whole may be caused.

However, because the IIR digital filter of claims 4 and 20 have a reset function, it is possible to return the processing of the entire wobble signal processing apparatus by performing the reset processing of the IIR digital filter.

Pupalaikis discloses that a filter may be an IIR filter (see Column 3, lines 30-34 and Column 9, lines 22 to Column 10, line 5). However, in contrast to the invention of claims 4 and 20, the IIR filter of Pupalaikis does not have a reset function. Instead, the IIR filter of Pupalaikis is merely provided with coefficients based on whether an output switch selects the IIR filter or a finite impulse filter (FIR). The IIR filter of Pupalaikis, however, clearly does not have a reset function, as recited in claims 4 and 20.

This feature of claims 4 and 20 is also not disclosed or suggested by Iida or Asano.

Accordingly, the Applicants respectfully submit that Iida, Pupalaikis and Asano, either individually or in combination, clearly do not disclose or suggest the IIR filter having a reset function as recited in claims 4 and 20.

Consequently, no obvious combination of Iida, Pupalaikis and Asano would result in the inventions of claims 4 and 20 since Iida, Pupalaikis and Asano, either individually or in combination, clearly fail to disclose or suggest each and every limitation of claims 4 and 20.

In item 6 on page 5 of the Office Action, claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Iida in view of Asano. Claim 5 has been rewritten in independent form to include the limitations of cancelled claim 1.

Claim 5 recites that the address detection circuit comprises a digital filter for filtering the digital signal outputted from the ADC (analog-to-digital converter). Further, claim 5 recites that the address detection circuit comprises a PRML (Partial Response Maximum Likelihood) circuit for correcting errors in the signal outputted from the digital filter, and detecting the ADIP (address in pre-groove) signal by using the corrected

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signal. Claim 5 recites that the ADIP signal is address information of the data recorded on the optical disc medium.

The Examiner contends that Asano discloses these features of the present invention because Asano discloses that a high-pass filter 584 is downstream from an A/D converter 580. However, Asano is related to reproducing data from an optical disc, where Asano uses a PRML method in which so-called maximum-likelihood decoding is performed and channel data is decoded as decoded data.

However, the Applicants respectfully submit that Asano clearly does not disclose or suggest that a PRML circuit for correcting errors in the signal outputted from the digital filter, and detecting the ADIP signal by using the corrected signal, as recited in claim 5. Specifically, claim 5 recites that a wobble signal is converted into a digital signal, and the PRML circuit corrects errors in the digital signal to detect the ADIP signal by using the corrected signal. Accordingly, claim 5 recites that the ADIP signal is detected from the wobble signal because the wobble signal is converted to the digital signal, and detected errors in the digital signal are used to detect the ADIP signal.

On the other hand, as described above, Asano merely discloses that data is reproduced from an optical disc by using a PRML method in which so-called maximum-likelihood decoding is performed and channel data is decoded as decoded data.

Accordingly, the Applicants respectfully submit that Asano clearly does not disclose or suggest the address detection circuit as recited in claim 5. In addition, the Applicants respectfully submit that Iida and Pupalaikis also clearly fail to disclose or suggest the address detection circuit as recited in claim 5.

Therefore, the Applicants respectfully submit that Iida, Pupalaikis and Asano, either individually or in combination, clearly do not disclose or suggest the address detection circuit as recited in claim 5.

Consequently, no obvious combination of Iida, Pupalaikis and Asano would result in the invention of claim 5 since Iida, Pupalaikis and Asano, either individually or in combination, clearly fail to disclose or suggest each and every limitation of claim 5.

In item 7 on page 6 of the Office Action, claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Iida in view of Chapman (U.S. 6,181,177).

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As demonstrated above, Iida, Pupalaikis and Asano each fail to disclose or suggest the IIR filter recited in claims 4 and 20, and the address detection circuit as recited in claim 5.

Similar to Iida, Pupalaikis and Asano, Chapman also fails to disclose or suggest the IIR filter recited in claims 4 and 20, and the address detection circuit as recited in claim 5. Therefore, Chapman cannot cure the deficiencies of Iida, Pupalaikis and Asano for failing to disclose or suggest each and every limitation of claims 4, 5 and 20.

Because of the clear distinctions discussed above, it is submitted that the teachings of Iida, Pupalaikis, Asano and Chapman clearly do not meet each and every limitation of claims 4, 5 and 20.

Furthermore, it is respectfully submitted that the distinctions are such that a person having ordinary skill in the art at the time the invention was made would not have been motivated to modify Iida, Pupalaikis, Asano and Chapman in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 4, 5 and 20.

Therefore, the Applicants respectfully submit that claims 4, 5 and 20 are clearly allowable over the prior art as applied by the Examiner.
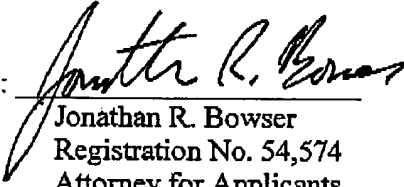
In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is respectfully solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

A fee and a Petition for a two-month Extension of Time are filed herewith pursuant to 37 CFR § 1.136(a).

Respectfully submitted,

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